

## ABSTRACT

A method for the encryption and decryption of digital images based on cyclotomic polynomials and radiometric expressions comprising the steps of generating an encrypting transform, partitioning the digital images into data blocks, along with encrypting, transmitting, and decrypting the data blocks. Three common radiometric expressions are fundamental metamers, black metamers, and radiometric functions. In one embodiment, the mathematical equation that represents the encrypting transform is a cyclotomic polynomial. In another embodiment, a cyclotomic polynomial is used to calculate the coefficients of the mathematical equation that represents the encrypting transform. In other embodiments, the encrypting transform is generated with a radiometric expression, and the encrypted data blocks are calculated with a radiometric expression.